text characters to form a line which may
consists of 1 to N characters" by "a line
of text". and it could be some part of
intermediary text characters during the
input. or a complete word. or an abbreviation,
or a shorthand.
Concerning the 3rd question, the invention
method utilizes a standard dictionary and
is also able to accept the abbreviation
input which contain the first character and
some other characters of the word to input
and the operator does not have to remember
the abbreviation.

In the letter of Sept. 26, 1996 from Examiner
it is stated that he found number of parts
in the specification were not clear enough
to understand and this list does not
represent all the problems in the specifi—
cation which should be reviewed more closely.
1. Detailed specification
a) The purpose of S020 and T001 are not clear
   For example, What is ID check?
b) Determining and Selection steps are very
   difficult to follow
2. Claims
a) Use of a word 'data' makes the claim
   very difficult to read. For example. word
   data? or input data? line of text data?
b) As in detailed descrption, determining
   and selecting steps are very difficult to
   follow. For example, what is predetermined
   range of line of text? This was not
   explained in the specification.
3) From the interview

Concerning claim 13:
a) Diffirence between word data and line
   of text
b) What does the dictionary contain
c) What is the role of abbreviation and
   shorthand in the invention
d) Last paragraph in the claim is not clear
   enough to understand

In response to the above, I claify the points,
item by item, as mentioned below.

RE: 1. a) The purpose of S020 and T001 are
          not clear, e.g. What is ID check?

The ID check is the subprogram to test
if there is the unique word which terminates
with the last input character or which
includes the same one as the last input
character in the remaining part of line of
text (word) other than that was already
collated. Its test is made after the current
input of character and prior to the
dictionary lookup, for example, by the
binary search technique which retrieves the
data in the dictionary dividing the area
into 2, in turn, or ISAM which is known as
the Indexed Sequential Access Method etc.
by the procedure commencing from S001.
For example, it is assumed that there are
three words "communication", "compete",
"computer" after the input of "com" as the
result of its prior search by S001 and its
followings. Then, at the time of next input
of "r", ID check step is activated to test

if there is the unique word with the last
character same as the last input character
" r ", or if there is the character same as
the last input character in the remaining
part of word other than that was already
collated. There is no particular relation
between S020 and T001. T001 is the entry
of steps to find the unique data in the
dictionary for the input of the first
character followed by some other characters
of word desired, partly utilizing the steps
of S001 and followings, in this example
process.

RE: 1. b) Determining and Selection steps
         are very difficult to follow

As an example, there are 12 records in the
dictionary. e.g. 1 (its value=a), 2 (c), 3 (e),
4 (g), 5 (i), 6 (k), 7 (m), 8 (p), 9 (r), 10 (t),
11 (v), 12 (x) in ascending order of its
contents. The input of ″r″ at this point
makes the first search retrieve the data
in the middle of the area. As it is not
successful in this case, its area to retrieve
is divided into two and upper half data of
7·8·9·10·11·12 are kept, as the retrieval
area. And next search is made to find " r"
in the middle of 7·8·9·10·11·12 and may
find 9 containing ″r″ which is in the middle
of the area as well as 10. If the data 10 is
taken as the data in the middle of this area,
the retrieval area is divided into 2 once
again. and the its lower half data of 7·8·9
remains in the area to retrieve, and its

third search may find the data of 9 with "r."
It is a manner to perform the dictionary
search using the above mentioned binary
search or Indexed Sequential Access Method
and could be also made by a random access
manner in which the value of "r" in the
example is used to generate the logical
address for storing and locating data in
the dictionary storage by which the
data is retrieved at the time of each
character input.
After the determination of the data by the
above steps, the selection steps take place.
The selection is relatively simple, because
it is a way to select a desired word which
has the last character same as the last
input character or which has the same
character as the last character in the
remaining part of line of text (word) other
than that was already collated between the
input and the dictionary data.
For example, the input of "t" is able to
select "shipment", after having 3 words of
shippable·shipping·shipment, by the input
up to "ship."

RE: 2. Claims
     a) Use of a word "data" makes the claim
        very difficult to read. For example,
        word data? or input data? line of data?

I have amended claims to state without using
"data", as was indicated by Examiner, to avoid
confusion.

RE: 2. Claims
  b) As in the detailed description,
     determining and selecting steps are
     very difficult to follow. For example,
     what is predetermined range of line
     of text? This was not explained in the
     specification.

I have amended the claims.
I mean the specific range of number for the
line of text to determine by means for
determining a unique line of text by "the
predetermined number range of line of text."
It is primarily intended to find the unique
line of text in the dictionary, but sometimes
we need the several data containing the same
keyword in the dictionary. Therefore, it
means the range of 2, 1—3, 1—5, and so on,
besides the necessity to seek the unique one.

RE: 3. From the interview
  a) Differences between word data and
     line of text
  b) What does the dictionary contain

I mean "a string of text characters to form
a line which may consists of 1 to N charac—
ters" by "a line of text", and it could be
some part of text characters during the
input, or a complete word, or an abbreviation,
or a shorthand.
The invention method utilizes a standard
dictionary and is also able to accept the
abbreviation input which contain a first
character and some other characters of

data input and the operator does not have
to remember the abbreviation.

RE: 3. From the interview
    a) What is the role of abbreviation
       and shorthand in the invention

The invention system utilizes a standard
dictionary and does not require a specific
dictionary for the abbreviation with its
original form of word to retrieve, though
the input of abbreviated form is acceptable
in a manner to find the unique line of text
in the dictionary containing the first
character followed by some other characters
of input text. A shorthand has no particular
role in the present invention.

RE: 3. From the interview
    d) Last paragraph in the claim is not
       clear enough to understand

The last paragraph states about the output
of the unique line of text which was
determined by means of determining a unique
line of text. or output of the line
of text which was selected by means for
selecting a desired line of text on the
display, after the successful determination
by means for determing the unique line of
text. in case of having plural relevant
words in the dictionary.

In summary, the detailed description of the
drawings are mentioned below to explain the

procedures to determine and select the line
of text in the dictionary.
Prior to it, please let me explain in
brief about the differences between the
conventional system and the present
invention, i.e. an abbreviation input
of the conventional system requires training
and memory of the operator and its standard
input displays all words which match
the input, i.g. if the input is COM, then all
words beginning with COM (COMMA, COMPUTER,
etc) are displayed and the operator selects
one of them.
In the invention system, the word is only
displayed when it has been uniquely identi—
fied and the system makes an audible noise
to alert operator, despite the kinds of
input of:

1) some leading characters (strokes) to be
   unique, (character by character or stroke
   by stroke)
   *** ( ) is applied to all mentioned below
2) first character and some other characters
   to be unique
3) first and end part to be unique
4) first and last character, and some other
   characters between first and last one
   to be unique
5) Stem of word and the last character
   to be unique
6) Stem of word and the some other character
   to be unique

DETAILED DESCRIPTION OF THE DRAWINGS

In the flowchart, A001 is the first step
to clear the contents of the program counter,
flag, and the working area, at the beginning
of the process.

A002 accepts a string of characters,
character by character, or stroke by stroke,
from the keyboard or the handwriting instru—
ments.

A003 checks if the input is the end of
data to show the end of transaction, and the
step goes to termination of process if it
is the end. Otherwise, the step proceeds
to the next A003A.

A003A tests if the NONE FLAG is ON which
means that there is no word including the
word input, in the dictionary. If NONE FLAG
is ON, the step goes to S020 in Fig. 9 in
which the ID check steps are perfomed to
find the unique one with the last character
same as the last input character or with the
character same as the last input character
in the remaining positions other than that
was already collated (Fig. 9),
as the ID check steps are performed after
the input of last input character and
prior to its dictionary search, utilizing
a flag of NONE FLAG which is set ON at
A006B in Fig. 3. It means that the attempt
to search at A006 in Fig. 3 by the previous
input has failed and the NONE FLAG is set
ON for the purpose to activate ID check
steps to find the data for "some leading
characters input and some other character
to be unique in the dictionary."

If NONE FLAG is OFF, the step proceeds to
A003B.

A003B tests if the input is a separator
code. If it is the separator, A003C clears
the contents of input buffer and the step
goes back to A002 for the next input.
Otherwise the step goes to A004.

At A004, the input character is displayed
at the end of characters string on the
display.

A005 adds the input to the end of
previous data in the input buffer memory.

A006 performs a dictionary search to get
the data which has the same leading part
as the input and unique in the dictionary
as one of example in the case, as there are
some other cases to find the data which is
unique, despite the kinds of input, e.g. the
input of the first character followed by
some other characters for the line of text
to represent the unique word in the
dictionary and so on.

A006A tests the result of dictionary
search at the above A006 which means "more
data to retrieve or not" in this example.
If it is negative, A006B turns the NONE FLAG
ON and goes back to A002.
In this example, NONE FLAG is used for the
purpose to do a sequence of "input of
following character and ID check to find the
unique word with the last character same as
the last input character or with the
character same as the last input character
in the remainin part other than that was
already collated."

If the test result of A006A is not
negative which means that there are still
more words to retrieve, next A007 tests
if the step of A006 found the unique one
in the dictionary. If not, the step goes
back to A002 for the next input to continue
the input and dictionary search.

If the unique one was found at A006,
A008 replaces the input on the display with
the unique one from dictionary and the
contents of input buffer are cleared for
the next input.

Next A008A is the selection step for the
case having plural relevant words in the
dictionary after finding the unique word in
the dictionary, in a manner that one of
relevant words is selected on the display
in this case, because the other selection
steps are performed by ID check at S020 in
Fig. 9 testing the existence of word which is
unique and terminates with the same one as
the last input character or which is unique
and includes the same character as the last
input character in the remaining part of
relevant words other than that was already
collated. Then the step goes back to A002
for the next input.

S001 is an entry of the subprogram to
search the unique line of text or stroke
data in the dictionary.

S002 tests if there is no more data.
The step goes to the exit in case of having
no data to retrieve in the dictionary.

Next S003 gets the data located in the
middle of the area between the upper limit

and lower limit of the dictionary.

S004 checks if the leading part of data from dictionary is greater than that of input. If the greater flag is ON, S005 divides the retrieval area size into 2 to use the lower half area for the following retrieval, as there is a possibility to find the unique one in the lower half area, because the dictionary data found at S003 was greater than the data input. Then the step goes back to S002. If the greater than flag is OFF at S004, the step proceeds to S006.

At S006, it is tested if the leading part of data from the dictionary is equal to that of data input. If it is equal, S007 tests if it is single and S008 turns the flag for the unique data ON, in case of single data found and goes to S012. Otherwise, the step goes to S012.

If it is not equal at the test of S006, the step goes to S009 in which the test is made if the leading part of data from the dictionary is less than that of data input.

If the less than flag is ON at S009, the retrieval area size is divided into 2 to use the upper half area for the following retrieval, as there is a possibility to find the unique data in the upper half area because the dictionary data found at S003 was less than that of data input.

If the less than flag is OFF at S009, there is something wrong with the steps and goes to the error procedure of S011 which is not described here, as it is not closely related to the invention.

Branching here from S007, S012 tests if
plural data found at S007 have the same stem
of word. If YES, S012A turns the NONE FLAG
ON and goes back to A002 for the next input.
This flag is to intentionally activate the
ID check steps after the next input and
prior to its dictionary search, in this
example. If NO, the step goes to S012B.

S012B tries to find the data with the
leading part which is greater than data
input in the upper half of the retrieval
area in the dictionary.

S013 tests if the data was found at
S012B and branch takes place upon its result,
to S014 if NOT FOUND, and to S015 if FOUND.

S014 sets new upper limit to retrieve
in the dictionary using the position of
the upper limit by which S012B was attempted
because the upper half area in this case is
occupied by the data with the leading part
equal to data input. Then the step goes to
S016.

S015 sets new upper limit to retrieve
in the dictionary using the position of
data found at the step of S012B. Then the
step goes to S016.

S016 tries to find data with the
leading part less than that of data input
in the lower half area of the dictionary.

S017 tests if the data was found.

If the data was not found, S018 sets new
lower limit using the position of the lower
limit by which S016 was attempted, because
the lower area is occupied by the data with
the leading part equal to that of data

input. Then the step goes to the exit of
this subprogram.

If the data was found at S017, S019
sets new lower limit to retrieve using the
position of data with leading part less
than that of data input and branches to
the exit of this subprogram.
Branching from A003A when NONE FLAG is on,
S020 performs ID check steps to start with
S023 which is the entry of subprogram.
It tests if there is the unique data which
has the last character same as the last
input character, or which includes the same
one as the last input character in the
remaining positions other than that was
already collated with data input.

Next S021 checks the FLAG for unique
word, after coming back from ID check.

If its flag is OFF, the step goes back
to A002 for the next input. If the flag is
ON, the step proceeds to next S022 which
turns the NONE FLAG OFF and supplements
the remaining part of data input on the
display. Then the step goes back to A002
for the next input.

S023 is the start of subprogram which
performs determination process of the unique
data. S023 examines data which were selected
by the prior lookup in the dictionary.

S024 tests if there is unique data which
terminates with the same one as the last
input. If NO, the step goes to S026. If YES,
the step proceeds to the next S025 which
turns the FLAG for unique word ON and goes
to exit of this subprogram.

At S026, it is tested if there is unique data which includes the last input in the remaining positions other than that was already collated with data input. If YES, the step goes to S025. If NO, the step proceeds to the next S027 in which the system extracts data which do not have the same one as the last input or which do not include the same one as the last input in the remaining positions other than that was already collated with data input.

As a subset of the dictionary search for data input consisting of a first character and some other characters, T001 which is equivalent to the above mentioned S001 in its role in this example, is the entry of this subprogram. It performs the dictionary search for the data input with the first character and some other characters of data input.

T002 which is equivalent to the above mentioned S002 in its role in this example, checks if there is still more word to retrieve in the dictionary. If there is no more word, the step goes to the exit. If there are words to retrieve, the step goes to T002A.

At T002A, the branch takes place depending on the first input or not. In case of the first one of data to input, the step goes to above mentioned S003. If it is not the first one, the step goes to next T002B.

T002B is to check if all words between upper and lower limit in the dictionary have the same leading part as data input.

T002C selects the words with the leading part which is not the same as that of the

data input.

TOO2D shifts one character to the left for every words selected at TOO2C and extracts words which have no more characters after making the character shift, as those words are no longer used for the following search process.

TOO2E sets new upper and lower limit to retrieve in the dictionary, after extracting words at TOO2D. Then the step goes to the above mentioned SOO3. (End of DETAILED DESCRIPTION OF THE DRAWINGS).

As a result of the above mentioned amendment of claims, the check in the amount of $103 was sent separately by Int'l Express PO Mail, together with the original of this documents.

Please address all your future correspondence to the applicant undersigned for this patent application.

Sincerely,

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